

We Claim:

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1. A flame retardant article, comprising:
An expanded polymeric foam material comprising a polymer, antimony-free fire retardant and a plurality of expanded polymeric microspheres, the foam material having an outer surface; and
An adhesive layer associated with the outer surface.
- 10 2. An article according to claim 1 wherein the article has a foam split strength greater than about 2.64 kN/m (>15 lbs/inch) ; 90 degree peel adhesion on stainless steel of greater than about 2.64 kN/m (>15 lbs/inch); and static shear strength at 22°C or 70°C of at least about 10, 000 minutes.
- 15 3. An article according to claim 1 wherein the expanded polymeric foam material is a sheet and the outer surface comprises a first major surface and a second major surface, the adhesive layer being disposed on at least a portion of one of the first or second major surfaces.
- 20 4. An article according to claim 3 wherein the adhesive layer is formulated without fire retardant, the adhesive disposed on at least a portion of both the first and second major surfaces.
- 25 5. An article according to claim 1 wherein the polymeric foam material is selected from the group consisting of elastomers, rubbers, thermoplastic elastomers, rubber based and acrylic adhesives, polyolefin polymers, acrylate polymers and methacrylate polymers , acrylate and methacrylate copolymers, and combinations thereof.
- 30 6. An article according to claim 1 wherein the article has a thickness less than about 0.635 mm (0.025 inches); and the adhesive layer comprising no greater than about 30 weight percent fire retardant based on the total weight of the adhesive layer.

- 5 7. An article according to claim 1 wherein the adhesive layer is selected from the group consisting of a copolymer of ethylhexyl acrylate and acrylic acid, a copolymer of isooctyl acrylate and acrylic acid, and a blend of an acrylic adhesive and rubber based adhesive.
- 10 8. An article according to claim 1 wherein the foam material comprises an acrylic adhesive.
9. An article according to claim 1 wherein the antimony free fire retardant is an intumescent material comprising an acid source, a char former, and a blowing agent.
- 15 10. An article according to claim 9, further comprising one or more synergists.
11. An article according to claim 10 wherein the synergists are selected from the group consisting of n-alkoxy hindered amine, tris(tribromoneopentyl)phosphate, melamine phosphate, melamine polyphosphate, boroxo siloxane elastomer, and monomeric n-alkoxyhindered amine.
- 20 12. An article according to claim 1 wherein the antimony free fire retardant is present in the foam at a concentration of between about 20 wt.% and about 60 wt.%.
- 25 13. An article according to claim 1 wherein one or both of the foam and the adhesive layer further comprises microfibers imparting stretch release properties to the article, the microfibers being selected from the group consisting of polymeric microfibers, viscoelastic microfibers, elastic microfibers, and combinations of the foregoing.
- 30 14. An article according to claim 13 wherein the microfibers comprise semicrystalline homopolymers, copolymers, terpolymers, tetrapolymers, and combinations of the foregoing of polyalkylene resins.

15. An article according to claim 1 wherein the article will pass one or more of the following the F.A.R. § 25.853 (July 1990), 12 Second Vertical Burn Test; F.A.R. § 25.853 (July 1990), 60 Second Vertical Burn Test; UL-94 V-2 rating; ASTM E162 with maximum flame spread index of 35; ASTM E662 with maximum specific optical density for flaming and nonflaming modes of 100 maximum (1.5 minutes) and 200 maximum (4.0 minutes); and BSS 7239.
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16. A method for preparing a fire retardant foam article, comprising:
- 10 (a) melt mixing a polymer composition, antimony-free fire retardant and a plurality of expandable microspheres, to form an expandable extrudable composition;
- (b) at least partially expanding one or more of the expandable microspheres;
- (c) extruding the expandable extrudable composition through a die to form a foam having an outer surface; and
- 15 (d) applying an adhesive composition onto at least a portion of the outer surface of the foam.
17. A method according to claim 16 wherein the melt mixing in step (a) comprises the selection of the polymer composition from the group consisting of elastomers,
- 20 rubbers, thermoplastic elastomers, rubber based and acrylic adhesives, polyolefin polymers, acrylate polymers and methacrylate polymers, acrylate and methacrylate copolymers, and combinations thereof.
18. A method according to claim 16 wherein applying an adhesive composition in step (d) comprises selecting the adhesive composition from the group consisting of a copolymer of ethylhexyl acrylate and acrylic acid, a copolymer of isooctyl acrylate and acrylic acid, and a blend of an acrylic adhesive and rubber based adhesive.
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19. The method according to claim 18, wherein applying an adhesive composition in step (d) further comprises formulating the adhesive composition without fire retardant therein.
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20 . A method according to claim 16 wherein melt mixing in step (a) includes mixing the polymer composition and the antimony free fire retardant with a plurality of expandable microspheres; step (b) comprises at least partially expanding a plurality of the expandable microspheres after the melt mixing step and before extruding the expandable extrudable composition through a die in step (c).

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21. A method according to claim 16 wherein the melt mixing in step (a) further comprises adding fiber-forming resins capable of forming microfibers; forming *in situ* the microfibers from the resins during step (c) to provide the fire retardant article with stretch release properties, the fiber-forming resins comprising copolymers of polyalkylene resins.

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22. A method according to claim 16, further comprising (e) exposing the outer surface of the foam to radiation to crosslink the foam and optionally to crosslink the adhesive composition.

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